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Image GP1765

P E Date: February 4, 2004

Gonia V. MeVean

**PATENT** 50626.17

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Neil McLELLAN et al.

Serial No.: 09/802,678

Filing Date: March 09, 2001

For: LEADLESS PLASTIC CHIP CARRIER WITH ETCH BACK PAD

**SINGULATION** 

Art Unit: 1765
Examiner: Unknown

COMMENTARY RE INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 CFR §1.56, and in recognition of their duty to disclose to the United States Patent and Trademark Office relevant information known to be material to patentability, Applicants herewith submit a copy of the prior art listed on the attached Information Disclosure Statement (Form PTO-1449), including English abstracts where needed. The statement is not a representation that all of the information cited is necessarily effective as prior art against the application.

U.S. Application No. 09/802,678 February 4, 2004 Page 2 of 2

Applicants respectfully request that the disclosed reference be made of record in the subject application.

Respectfully submitted,

Date: February 4, 2004

Attorneys for Applicant(s)

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( FEB 0 5 2004 😸			PTO/SB/08A (04-03)
		Complete if Known	
Substitute for form 1449 TRADEMART	Application Number	09/802,678	
INFORMATION DISCLOSURE	Filing Date	March 9, 2001	
	First Named Inventor	Neil McLELLAN	
STATEMENT BY APPLICANT	Art Unit	1765	
(Use as many sheets as necessary)	Examiner Name		
Chapt d of d	Attornov Docket Number	50626 17	

			U.S. PATEI	NT DOCUMENTS	
Examiner Initials*	Cite No.1	Document Number  Number-Kind Code <sup>2(if known)</sup>	Publication Date MM -YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US2003/0015780	01/2003	Kang et al.	
	2	4,685,998	08/1987	Quinn et al.	
	3	5,066,831	11/1991	Spielerger et al.	
	4	5,293,072	03/1994	Tsuji et al.	
	5	5,444,301	08/1995	Song et al.	
	6	5,777,382	07/19888	Abbott et al.	
	7	6,057,601	05/2000	Lau et al.	
<del>, , ,</del>	8	6,194,786	02/2001	Orcutt	
	9	6,229,200	05/2001	McIellan et al.	
	10	6,294,830	09/2001	Fjelstad	
	11	6,306,685	10/2001	Liu et al.	
	12	6,459,163	10/2002	Bai	
	13	6,498,099	12/2002	Mclellan et al.	
	14	6,528,877	03/2003	Ernst et al.	
	15	6,585,905	07/2003	Fan et al.	
	16	6,635,957	10/2003	Kwan et al.	

		FO	REIGN PATEN	T DOCUMENTS		
Examiner Initials*	Cite No.1	Foreign Patent Document  Country Code®Number-Kind Code®(if known)	Publication Date MM -YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sub>e</sub>
						X
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Date Examiner Considered Signature

<sup>\*</sup>Examiner: Initial if reference considered, whether of not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant.

<sup>&</sup>lt;sup>1</sup> Applicant unique citation designation number (optional). <sup>2</sup>See Kind Codes of USPTO Patent documents at <a href="https://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document by the two-letter code (WIPO Strandard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6 Applicant is to place a check mark here if English language Abstract is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14.



## A DOCPHOENIX

INCOMING	INCOMING	APPL PARTS
ACPA	6 BO W TETAL BOOK W	ARTIFACT
Continuing Prosecution Application	Misc. Incoming Letter	Artifact
AP.B	IMIS	CLM
Appeal Brief	Miscellaneous Internal Document	Claim
C680	PGEA	COMPUTER
Request for Corrected Notice/Allowance	Req Express Aband to avoid Publication	Computer Program Listing
C.AD	PGA9	CRFL
Change of Address	Req for Corrected Pat App Publication	CRF Transfer Request
CFILE	PGREF	CRFS
Request for Corrected Filling Receipt	Req for Refund of Publication Fee Paid	Computer Readable Form Statement
COCIN	PROTEST	DIST
Papers filed re Certificate of Corrections	Protest Documents Filed by 3 <sup>rd</sup> Party	Terminal Disclaimer Filed
CRFD	PROTRANS	DRW
Computer Readable Form Defective	Translation of Provisional in Nonprovionl	Drawings
CRFE	REM Applicant Remarks in Amendment	FOR
Computer Readable Form 'ENTERED'		Foreign Reference
EABN	RESC	FRPR Foreign Priority Papers
Request for Express Abandonment	Rescind Non-Publication Request	· · · · · · · · · · · · · · · · · · ·
ELC.	ROCKET	IDS Including 1449
Response to Election/Restriction	Request for Design Processing	- I, I
IFEE Issue Fee Transmittal PTOL 85 B	XT/ Extension of Time filed separate	NPL V
	·	OATH
IRFND Refund Request	APPL PARTS	Oath or Declaration
•	371P	PET.
L_RIN Any Incoming to L&R	PCT Papers in a 371Application	Petition
N417	A	RUSH
	Amendment Including Elections	OPUBS Printer Query
Copy of EFS Receipt Acknowledgement	•	SEQLIST
Notice of Appeal	A.NE After Final Amendment	Sequence Listing
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Change in Power of Attorney	Preliminary Amendment	Specification
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PEF.	ADS	·
Pre-Exam Formalities Response	Application Data Sheet	
PEFRREISS	AF/D	
Pre-Exam Formalities Reissue Response	Affidavit or Exhibit Received	
PEFRSEQ	APPENDIX	

Appendix

Pre-Exam Formalities Sequence Reply



# (19) United States

#### (12) Patent Application Publication (10) Pub. No.: US 2003/0015780 A1 Jan. 23, 2003 (43) Pub. Date: Kang et al.

- (54) BUMPED CHIP CARRIER PACKAGE USING LEAD FRAME AND METHOD FOR MANUFACTURING THE SAME
- (76) Inventors: In Ku Kang, Cheonan-city (KR); Sang Ho Ahn, Suwon-city (KR)

Correspondence Address: LEE & STERBA, P.C. Suite 2000 1101 Wilson Boulevard Arlington, VA 22209 (US)

(21) Appl. No.:

10/118,944

(22) Filed:

Apr. 10, 2002

(30)

Foreign Application Priority Data

Jul. 19, 2001

(KR) ...... 2001-43446

## **Publication Classification**

(51) Int. Cl.7 ...... H01L 23/06; H01L 23/48; H01L 23/52; H01L 23/28 (52) U.S. Cl. ...... 257/684; 257/738; 257/737;

**ABSTRACT** (57)

An improved bumped chip carrier (BCC) package according to the present invention includes a resin-molded lead frame encapsulating an attached semiconductor integrated circuit (IC) and a plurality of interconnecting wire bonds attaching a phurality of contact pads on the IC to an associated plurality of solder-covered external contact terminals that are integrated in the lead frame. By integrally processing the external contact terminals, bonding wires may be affixed using a single wire bonding process. A method for manufacturing the BCC package preferably includes a dual photoresist patterning process accompanied by a dual wet etching process to create a plurality of highly reliable external contact terminals having improved bonding between the contact terminals and the encapsulating resin

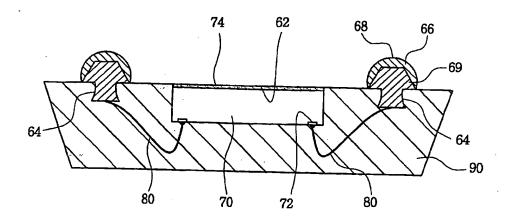


FIG. 1 (PRIOR ART)

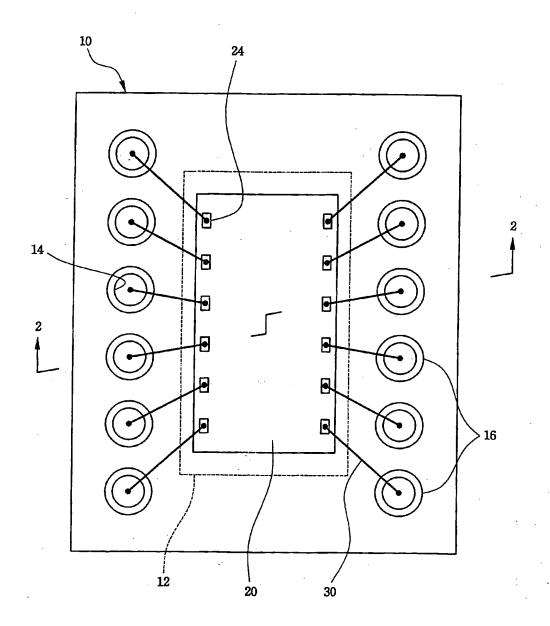


FIG. 2 (PRIOR ART)

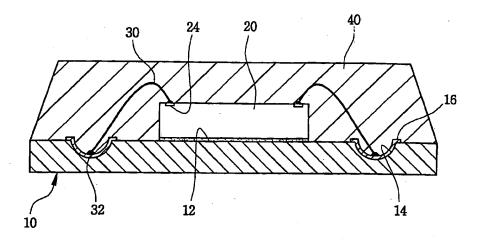


FIG. 3 (PRIOR ART)

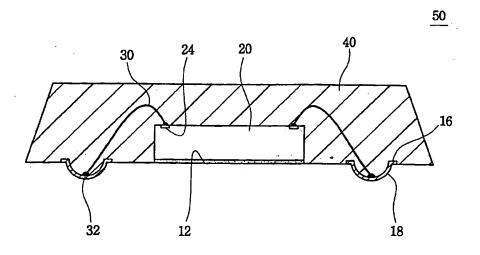


FIG. 4

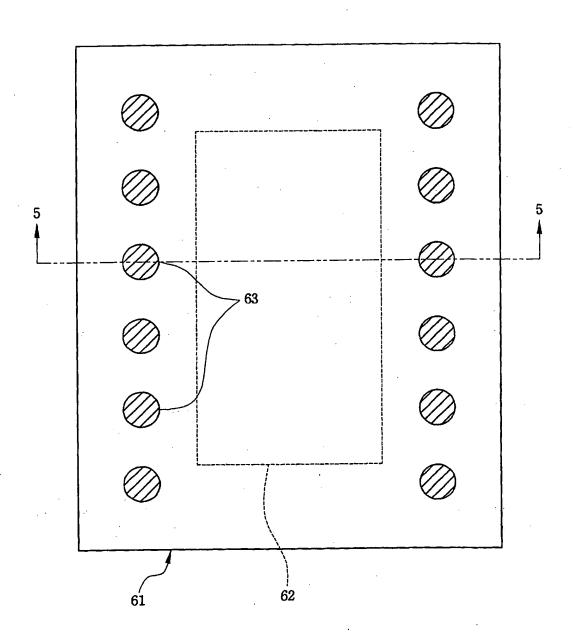


FIG. 5

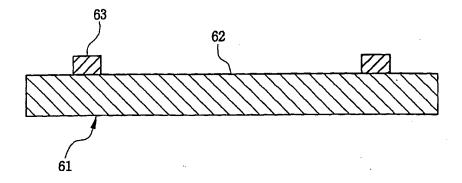


FIG. 6

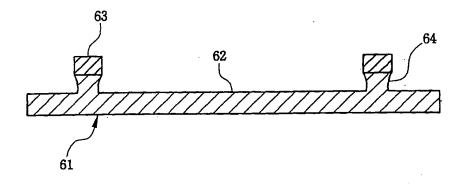


FIG. 7

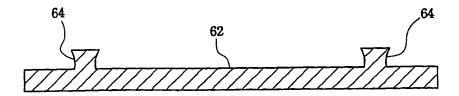


FIG. 8

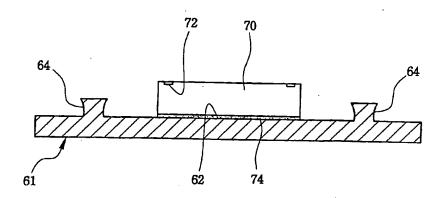


FIG. 9

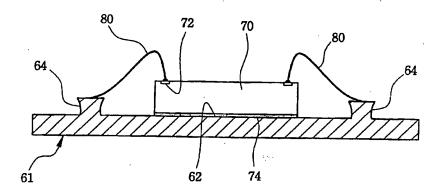
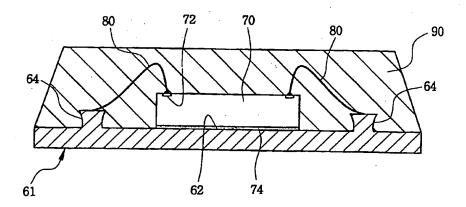


FIG. 10



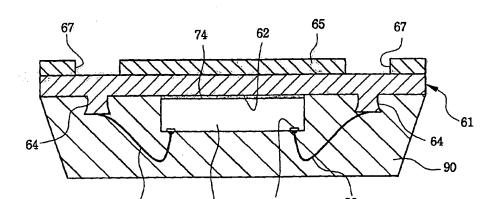


FIG. 12

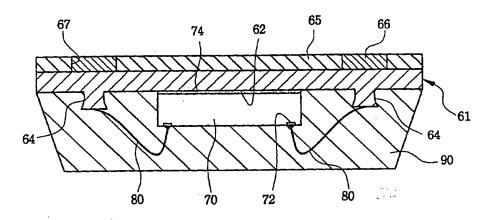
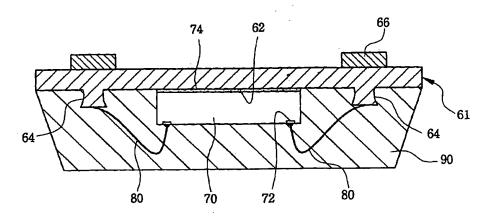


FIG. 13



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FIG. 14

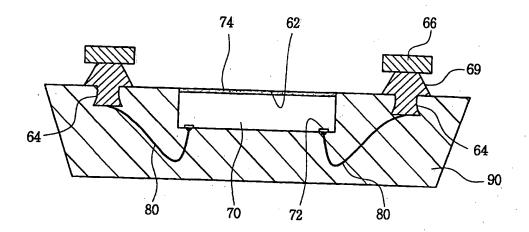


FIG. 15

